California Integrated Waste Management Board
Session Summary:
Emerging Technology Forum
April 17-18, 2006
Non-Regulatory Perspective Roundtable

Summary of presentations prepared by CIWMB Staff

Session Overview

The Emerging Technologies Forum was designed to focus on presenting the latest technical information possible, so that stakeholders of all perspectives would have the same common information base, which they could then use to formulate, revise, change, or maintain their perspectives. The purpose of the "Non-Regulatory Perspective Roundtable" was to hear perspectives from organizations/entities that are not directly involved in regulating emerging technologies or in conducting testing on emissions and residuals from specific technologies, but who have been involved in one way or another in examining and raising questions about them. Participants in this session were asked how they viewed the information presented, what data gaps still exist and what additional information they would like to see developed, who they think should be involved in developing such data, and how they think this information should be used.

Brief summary of presentation by Evan Edgar prepared by CIWMB staff

Evan Edgar is with Edgar & Associates, Inc., a registered lobbying firm for the California Refuse Removal Council (CRRC). CRRC is a statewide non-profit trade association representing the interests of over 100 solid waste management companies involved with collection, hauling, processing, recycling, composting, and landfilling.

Mr. Edgar's presentation, entitled "Emerging Technologies, the Nexus of State Policies," identified four State policies affecting solid waste management, as depicted in an accompanying "Global Graphic" handout. The first, Solid Waste Policy (AB 939), has a goal to divert 50% of solid waste from disposal. Mr. Edgar noted that despite this goal, we are still disposing of 41 million tons of solid waste per year and need to move beyond AB 939 to a higher percentage of diversion, which will require an increase in conversion technologies (CTs). He suggested that use of CTs should complement recycling, which can be accomplished by having CT facilities co-located next to material recovery facilities (MRFs) and transfer stations; in other words "MRF first."

The second policy, on Energy, has renewable energy goals of reaching 20% renewable energy by 2010 and 33% renewable energy by 2020. The third is Air Policy, which has greenhouse gas reduction goals of achieving year 2000 levels by 2010, 1990 levels by 2020, and 80% of 1990 levels by 2050. The fourth is Transportation Policy, which has goals including 5.7% renewable fuel by 2002 and 2 billion gallons by 2020. CTs could help meet these policy goals as well. Mr. Edgar observed that all 4 policies are competing for feed stock. Anaerobic digestion of green waste could produce renewable energy, capture some greenhouse gases, reduce waste, and produce compost. The gasification of wood waste could produce ethanol for fuel substitution, capture some greenhouse gases, and reduce waste.

Pyrolysis of MSW and MRF residuals could produce fuel and reduce waste, while providing wood chips to biomass plants could also produce renewable energy.

He suggested that CTs should receive AB 939 diversion credit, and that there was need for additional compost market development. He concluded by saying that the path to zero waste, zero emissions, and zero tolerance is through commercialization that is cost-effective.

Brief summary of presentation by Neil Seldman prepared by CIWMB staff

Neil Seldman is the co-founder of the Institute for Local Self-Reliance (ILSR) and director of its Waste to Wealth Program. ILSR provides technical assistance and information on environmentally sound economic development strategies, which includes helping community development organizations, small businesses and government agencies increase productive employment, recover increasing amounts of valuable recycled materials and products, save environmental resources, and lower operating costs.

Mr. Seldman began his presentation by saying that he was excited about the earlier presentations by the Cities of Los Angeles and New York, and added that he felt both cities are moving in the right direction with regard to recycling and biological conversion technology (CT). He also reminded the audience that he had actively opposed mass burn incineration plants around the country for many years, but that at the same time he recognized that incinerator emissions have been cleaned up over the last two decades, although he also questioned at what cost this had been accomplished. On a separate note, he said he would like to see the same infrastructure support for CT that was provided for AB 939. He went on to say that to solve the waste problem, one cannot look at the waste stream, but should look instead at why something is produced and try to change what goes into the waste stream. He provided as an example a project proposed by Masada OxyNol for Birmingham, Alabama. The project as proposed would have used acid-hydrolysis technology to convert organic waste and sewage sludge into ethanol. It would incorporate a materials recovery facility in the front end with an ethanol production facility at the back end. Two years into planning the project, the City of Birmingham withdrew proposed agreements for the facility due to higher costs. These higher costs were the result of Masada not having control of the waste stream and having to use a higher tipping fee to accept mixed waste. Mr. Seldman recommended as a potential solution that a statewide disposal fee be created to fund these types of projects.

Mr. Seldman asked rhetorically if zero waste can be achieved without thermal technology. He said the answer is political. The waste stream is always changing. He gave as an example Wal-Mart's move into using bioplastic, which will have an effect on composting. He added as another example that aluminum is dirty when combusted and all of it could be recycled rather than thermally converted. He stated again that to achieve zero waste with or without thermal technology is a political decision and is not related to the Federal Resource Conservation and Recovery Act (RCRA) or the California Environmental Quality Act (CEQA). He said that waste-to-energy plants are wasted energy systems. The materials are far more valuable as materials than as energy, including plastic, which has gone up in value. He stated that every time we try to get energy out using thermal systems, we're defeating ourselves.

In terms of jobs, he said thermal technology provides one job for every 10,000 tons, whereas for recycling and biological conversion technology there are about 300 jobs for 10,000 tons. He added that small scale plants are the solution and thermal technology should be put on the backburner. He said the waste stream needs to be changed so technologies (recycling and biological conversion) can handle it now. He recommended not getting rid of zero emissions as a standard or goal, because companies will rise to the standard. He added that to achieve zero waste we need the right political leaders to make it happen.

Mr. Seldman concluded his presentation by saying that every part of a city should deal with its own waste. He said the technology is here, but cities need to listen to their citizens and the best system will be developed. He also suggested that the question of burning versus non-burning may not be the primary issue, but rather that decision makers need a better comparative information base. He handed out a conceptual "Decision-Making Chart" in which various technologies/practices (reduction, composting, anaerobic digestion, backyard composting, source-separated recycling, mass burn, refuse-derived fuel, fluidized bed gasification, pyrolysis, landfilling, and bioreactors) would be compared across the parameters such as acres required, cost (capitol and operational), tons per day, cost per ton, number of jobs generated, emissions (including data on cumulative releases), energy produced, and energy saved. He suggested this effort could defuse the incineration/non-incineration debate and get every one thinking along similar lines.

Brief Summary of presentation by Jane Williams prepared by CIWMB staff

Jane Williams is the Executive Director of California Communities Against Toxics (CCAT), which is an environmental justice network that advocates for environmental justice, pollution prevention, and world peace.

Ms. Williams began her presentation by asking the audience whether they knew about the Stockholm Convention on Persistent Organic Pollutants (POPs). She explained that this was one of the few environmental treaties signed by President George W. Bush and that it bans certain chemicals, such as specific organic pesticides, PCBs, dioxins and furans. She added that the United States had already banned most of these chemicals prior to signing the convention. Ms. Williams then stated that burning trash was a leading source of dioxins. She said that the aim of the convention is to eliminate dioxins globally since they bioaccumulate and can become a health problem. Small amounts (picograms) of dioxins can cause health impacts, while what comes out of incinerators is measured in grams. She added that endometriosis has been linked to dioxins and said that the cancer slope for dioxin is steeper than that for plutonium.

She strongly opposed new landfills and thermal conversion technologies (CT) and contended that society needs to find sustainable way to deal with waste that does not involve disposal or burning. She suggested that one important step in this is to redesign products so that they do not include constituents of concern.

Ms. Williams noted that conversion technologies have already been proposed in California and listed some of the cities, such as Romoland, Red Bluff, Santa Cruz, Chowchilla, Imperial County, and Hanford. She said that none of these CT facilities

had completed an Environmental Impact Report and most were permitted by air districts by claiming they had zero emissions.

Ms. Williams recommended letting the community make the decision about whether to have a CT facility or not. She contended that communities are less concerned about the efficacy of technologies (e.g., about typical air pollution controls that keep emissions below regulatory levels) and instead are more concerned about catastrophic accidental release of pollutants from these technologies. She gave as an example her involvement with the U.S. Department of Defense Non-Stockpile Chemical Materials Core Group, where a group of environmental advocacy organizations, regulatory agencies and government agencies provided input on the method of treatment to be used in getting rid of chemical weapons. She added that many chemical weapons sites advanced treatment technologies that did not include incineration.

Ms. Williams emphasized the need to look at the process being used in siting CT facilities, which should be transparent to the public so people are aware of the impacts. She said that most of the CT plants being proposed engendered environmental justice concerns.

Ms. Williams' presentation immediately stimulated discussion re: dioxins. Dr. Schnurer stated that filters were added to incinerators 20 years ago, bringing emissions down to low levels, and that there are other sources of dioxin. Ms. Williams noted in response that the EU regulations for dioxins are about the same as those of the U.S. and that these levels are still a concern. She further noted that one of the three incinerators in California has carbon injectors which capture and place dioxins from emissions into the incinerator ash, so that the problem is not resolved but merely shifted. She also stated that enforcement at the air districts is poor, and that given already bad air quality in California additional air pollution are deleterious to public health. Several stakeholders questioned Ms. Williams' numbers for dioxin emissions from incinerators, and the IES representative disputed Ms. Williams' claim that the IES incinerator in Oakland did have a public hearing and Negative Declaration under CEQA. Another audience member contended that the reality of Ms. Williams' position meant that all wastes will go to landfills, and then asked whether she would support a CT facility if a landfill had greater estimated health risks than the CT facility. Ms. Williams responded that she would not, because there are tentatively identified chemicals in emissions that have not yet been evaluated, nor their health risk assessed, and because waste should not be landfilled or burned, they should be recycled or reused.

Brief summary of presentation by Karen Coca prepared by CIWMB staff

Karen Coca is the Manager of Commercial Recycling Programs and Market Development for the City of Los Angeles.

Ms. Coca began her presentation by stating that the Sunshine Canyon Landfill is located in an upper-middle class neighborhood, Granada Hills, which also happens to be her place of residence. She said the reality about living near the landfill is that 3½ tons of trash has to be disposed of every day, regardless of the many facilities that process construction and demolition debris, recover clean recyclables, and

recover paper. Even with a diversion rate of over 60 percent, 3 ½ tons of trash are still disposed daily.

Ms. Coca went on to say that she is aware of the long delays in getting new facilities permitted. It took 8 years for the City of Los Angeles to site a collection yard. But, she said something else needs to be done with waste material other than landfilling. Landfilling waste material is archaic. She added that even with all of the diversion programs in place there still will be something left. She said the longer it takes to find alternatives, the more waste material goes into landfills. She noted there is enough waste material to feed recyclers and conversion technologies, and still have some left over for landfills.

Ms. Coca concluded her presentation by asking that some of the conversion technologies be put into practice. In doing this, she recommended holding neighborhood meetings and complying with the California Environmental Quality Act (CEQA).

Brief Summary of presentation by John Shears prepared by CIWMB staff

John Shears is a visiting Fellow for the Center for Energy Efficiency and Renewable Technologies (CEERT). CEERT is a nonprofit, public-benefit organization comprised of concerned scientists, environmentalists, public interest advocates and individuals involved in developing innovative energy technologies that share a vision to benefit the environment with sustainable solutions to California's growing appetite for energy.

Mr. Shears began his presentation by saying he had the following observations to make that were based on the issues discussed earlier at the Forum:

- First, he was surprised how many recyclables end up in the waste stream.
- Second, he said the packaging stream of materials should be designed to be recyclable.
- Third, he observed the average beer bottle in Canada is used 12 times before it needs to be melted back into another beer bottle, whereas in California they are used once and discarded.

Mr. Shears then offered the following "50,000-foot view" of emerging technology:

- Overambitious pushing by some groups in the past has created distrust by the public.
- Data for life cycle analysis and risk analysis are needed.
- The State should set-up a third party independent review center to evaluate technologies.
- Operators need to demonstrate that staff are adequately trained and can operate a facility within specifications.
- There is a need for transparency so public is aware.